

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

MAILED

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U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* SATOSHI ARAKAWA

Appeal No. 2005-2140  
Application No. 09/943,355

HEARD: September 15, 2005

Before BARRETT, GROSS, and BARRY, *Administrative Patent Judges*.  
GROSS, *Administrative Patent Judge*.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 1 through 20, which are all of the claims pending in this application.

Appellant's invention relates to a radiation image recording and read-out method and apparatus in which a radiation image is stored on a stimulable phosphor sheet and the phosphor sheet is erased by a sheet-shaped erasing light source located on the same side of the phosphor sheet as the radiation. Claim 9 is illustrative of the claimed invention, and it reads as follows:

9. A radiation image recording and read-out apparatus, comprising:

i) an image recording section for supporting a stimulable phosphor sheet at a position for image recording, at which one surface of the stimulable phosphor sheet is exposed to radiation,

ii) image read-out means located on a side of the other surface of the stimulable phosphor sheet supported at the position for image recording, which other surface is opposite to the one surface of the stimulable phosphor sheet exposed to the radiation, the image read-out means performing an image read-out operation by irradiating stimulating rays in two-dimensional directions to the stimulable phosphor sheet, on which a radiation image has been stored during its exposure to the radiation, the stimulating rays causing the stimulable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to the radiation, and photoelectrically detecting the emitted light, an image signal, which represents the radiation image having been stored on the stimulable phosphor sheet, being thereby obtained, and

iii) a sheet-shaped erasing light source located in close vicinity to the stimulable phosphor sheet and on a side of the one surface of the stimulable phosphor sheet supported at the position for image recording, which one surface is exposed to the radiation, the sheet-shaped erasing light source having uniform transmissivity to the radiation, the sheet-shaped erasing light source releasing energy, which remains on the stimulable phosphor sheet after the image signal has been obtained from the stimulable phosphor sheet, by irradiating erasing light to an entire area of the stimulable phosphor sheet,

wherein the stimulable phosphor sheet comprises a sheet-shaped transparent substrate and a stimulable phosphor layer,

the sheet-shaped erasing light source is arranged on one side of the sheet-shaped transparent substrate, and the stimulable phosphor layer is arranged on another side, which is opposite to the one side, of the sheet-shaped transparent substrate, and

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the stimulating rays for the image read-out irradiate the stimulable phosphor layer at the side opposite to the side exposed to the radiation.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Ohyama et al. (Ohyama)	4,767,927	Aug. 30, 1988
Saotome (Saotome I)	4,814,616	Mar. 21, 1989
Saotome et al. (Saotome II)	5,115,132	May 19, 1992
Arakawa	JP 11-038533	Feb. 12, 1999

Claims 1 through 5, 7, 9 through 13, 15, and 17 through 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Saotome II in view of Arakawa.

Claims 6 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Saotome II in view of Arakawa and Saotome I.

Claims 8 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Saotome II in view of Arakawa and Ohyama.

Reference is made to the Examiner's Answer (mailed June 10, 2004) for the examiner's complete reasoning in support of the rejections, and to appellant's Brief (filed April 27, 2004) and Reply Brief (filed August 10, 2004) for appellant's arguments thereagainst.

**OPINION**

As a preliminary matter, we note that appellant indicates on page 5 of the Brief that claims 1 through 6, 8 through 14, and 16 through 20 stand or fall together. Appellants have only argued claims 7 and 15 separately. Accordingly, for each ground of rejection, we will treat all of the claims as standing or falling together except for claims 7 and 15, which we will treat as a separate group.

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellant and the examiner. As a consequence of our review, we will reverse the obviousness rejections of claims 1 through 20 and enter new grounds of rejection under 35 U.S.C. § 112, second paragraph, for claims 6 and 14, and under 35 U.S.C. § 103 for claims 1, 9, 19, and 20.

The examiner asserts (Answer, page 10) that with respect to independent claims 1 and 9, Figure 10 of Saotome II teaches everything except that the erasing light source is not illustrated as sheet-shaped nor is it on the side of the phosphor sheet that is exposed to radiation. The examiner points to column 10, line 64-column 11, line 5, of Saotome II as showing that Saotome considers a sheet-shaped erasing light source to be

equivalent to the lamps shown in Figure 10. For the location of the erasing light, the examiner turns to Arakawa, stating (Answer, page 4) that

Arakawa shows that a sheet-shaped erasing light source 30 located in close vicinity to the stimulable phosphor sheet 20 and on a side of the one surface of the sheet supported at the position for image recording (of object 50) which is exposed to the radiation and furthermore irradiating erasing light to an entire area of the sheet 20 is known. . . . The sheet-shaped erasing light source 30 of Arakawa is plainly more compact than the bulky sources 261 of Saotome, and uses the exact technology identified by Saotome et al. as equivalent thereto, so it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Saotome to comprise a sheet-shaped source erasing light in the location suggested by Arakawa since a smaller case 229 could be achieved that way.

Appellant argues (Brief, page 6) that the skilled artisan would not have been motivated to combine Arakawa with Saotome II because Arakawa's electroluminescent panel does not erase the energy completely from the phosphor sheet and, thus, differs from the erasing light of Saotome II. Further, appellant contends (Brief, page 3) that neither Saotome II nor Arakawa suggests that replacing Saotome II's light sources in Figure 10 with an EL plate would reduce the size of the apparatus. We agree that there is no reason to combine the two references. The examiner's reason for combining is not supported by either reference.

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Although the device might be smaller in width by the substitution, the device will be larger in overall thickness. Thus, we cannot sustain the rejection of claims 1 and 9 nor of the claims grouped therewith, claims 2 through 5, 10 through 13, and 17 through 20. In addition, since claims 7 and 15 depend from claims 1 and 9, respectively, we will not sustain the rejection of claims 7 and 15.

Regarding claims 6 and 14 and claims 8 and 16, neither Saotome I nor Ohyama cures the deficiency of the primary combination. Accordingly, we cannot sustain the obviousness rejections of claims 6, 8, 14, and 16.

**REJECTION UNDER 37 C.F.R. § 41.50(b)**

Under the provisions of 37 C.F.R. § 41.50(b), we enter the following new grounds of rejection against appellant's claims.

Claims 6 and 14 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In claims 1 and 9, from which 6 and 14 ultimately depend, the stimulable phosphor sheet is formed of a sheet-shaped transparent substrate and a stimulable phosphor layer and the erasing light source is arranged on one side of the sheet-shaped transparent substrate. Claims 3 and 11 further limit claims 6 and 14, respectively, by reciting that the erasing light source is formed of a transparent sheet with light sources

at the ends thereof. Claims 6 and 14 then recite that transparent sheet also acts as the sheet-shaped transparent substrate. It is unclear how the erasing light source can be on one side of the transparent substrate if part of the erasing light source is the transparent substrate and the other part of the erasing light source is at one end of the transparent substrate. Thus, claims 6 and 14 are vague and indefinite.

Claims 1, 9, 19, and 20 are rejected under 35 U.S.C. § 103 as being unpatentable over Saotome II.

Saotome II shows in Figure 19 phosphor sheet 422 inside light shielding cover 426. As shown in Figure 16, radiation strikes phosphor sheet 422 through the upper surface. Sheet 422 moves across into case 425 for read-out and then back into light shielding cover 426. Figure 19 shows a surface type erasing light source 471 above the phosphor sheet 422 inside case 425, but Saotome II discloses (column 25, lines 33-35) that the phosphor sheet may be provided inside the light shielding cover. Saotome II further discloses (column 20, lines 228-30 and 37-38) that 422A is a plate-like substrate over a phosphor layer 422B, which together form the phosphor sheet. Also, Saotome II discloses (column 25, lines 23-26) that when the substrate 422A is transparent, erasing light source is on the side opposite to

the image read-out section. Element 451 is shown as a laser beam source for stimulating the phosphor sheet and element 459 is a photomultiplier for use during read-out. Although the erasing light is on one side of the phosphor sheet when the phosphor sheet is in light shielding element 426, and the read-out section is on the other side of the phosphor sheet when the phosphor sheet is in case 425, there is nothing in the claims that requires that the two elements be on opposite sides of the phosphor element simultaneously.

Accordingly, the only difference between Saotome II's Figure 19 and claims 1 and 9 is that Saotome II does not specify that the erasing light source has uniform transmissivity to the radiation. However, since the erasing light source covers the entire surface of the phosphor sheet, and the radiation must pass therethrough, it at least would have been obvious to make the transmissivity of the erasing light source uniform across the entire surface. Therefore, claims 1 and 9 would have been obvious over Saotome II.

With regard to claims 19 and 20, since the erasing light covers the entire surface of the phosphor sheet, it clearly erases energy across the entire surface. Further, Saotome II discloses (column 14, lines 52-55) that the radiation energy

remaining on the sheet after image readout is released when the sheet is exposed to the erasing light source. Therefore, claims 19 and 20 would have been obvious over Saotome II.

We have rejected only claims 1, 9, 19, and 20, as the remaining claims would require further references for their limitations. For example, we have no evidence to show the obviousness of using an organic electroluminescent erasing light, as recited 2 and 10, nor a light diffusing transparent sheet with light sources at the edges thereof for the erasing light source, as recited in claims 3 through 6 and 11 through 14. We leave the search for such evidence to the examiner.

#### **CONCLUSION**

The decision of the examiner rejecting claims 1 through 20 under 35 U.S.C. § 103 is reversed. A new ground of rejection has been entered under 35 U.S.C. § 112, second paragraph, for claims 6 and 14, and under 35 U.S.C. § 103 for claims 1, 9, 19, and 20.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 37 C.F.R. § 41.50(b) provides "[a] new ground of

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rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

**REVERSED**  
**37 C.F.R. § 41.50(b)**

APG/vsh

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